

## Belt Misalignment Monitoring for Bucket Elevators



For the vertical transport of bulk goods, for example, in power stations, in the lime, plaster and cement industries, in the agricultural goods and chemicals sectors, in ore processing and mining, in the salt and sugar industries and in the environmental technology, enormous quantities are moved to and from great heights by means of bucket elevators.

To ensure the safe and trouble-free operation of conveying processes, it is vital to detect and signal run out before major damage occurs.

The Klaschka System for bucket elevators employs two flat sensors to continuously monitor the positions of the buckets in relation to the outer walls. The analogue output signals are linearised by an evaluator unit and the difference between the two readings is transmitted to the plant control system.

In addition, LEDs on the front panel of the evaluator unit indicate the status of the plant to the operating personnel.

**The benefits of the Klaschka System are the following:**

**Sensors:**

- inductive flat distance sensors (identical switching distance for all metals)
- resistant to magnetic fields (no disturbances when applied near motor drives )
- robust housing, not sensitive against contaminations
- extremely high switching distances (up to 170 mm)
- high operating temperature range
- can be individually set for the relevant application conditions

**Evaluator unit:**

- monitoring device with function displays
- simple mounting
- comfortable spring-type terminals for shielded signal leads
- can be set for various bucket geometries

**Options:**

**Use of alternative sensor technology:**

- capacitive, ultrasonic, or laser sensors  
(for a wide application range, such as also non-metallic buckets)
- customer-specific system applications



Evaluator Unit UAM



Flat Sensors IFC

## Purpose and Functioning

Monitoring of bucket elevators for run out.

Linearisation of the analogue signals of the two flat sensors, conversion of the difference reading into 4...20 mA signals for possible transmission to a PLC or the operating computer.

In the event of a run out, there are two outputs for signalling warnings or alarms.

Multicolour LEDs indicate the positions of the buckets, and are thus an aid when setting the installation.

## Equipment and Data

- robust housing with transparent cover
- IP 65 ingress protection rating
- spring-type terminals for connecting leads
- shielded signal lead with integral 24VDC supply for evaluator unit and sensors
- monitoring of the sensors for lead breakage
- 24 VDC power supply
- 0 ... 20 mA input current
- 4 ... 20 mA output current
- 24 VDC switching outputs

## Purpose and Functioning

Inductive flat sensors for large distance ranges (selectable are 0 ... 110 mm or 0 ... 170 mm) and applicable for all metals because of almost identical switching distances.

The output signals of the two sensors arranged in pairs are transmitted to the evaluator unit.

The characteristic lines of the sensors are individually set according to the relevant application conditions of the conveyor system.

## Equipment and Data

- robust housing material (Makrolon)
- resistant to magnetic fields
- IP 65 ingress protection rating
- PUR lead
- factor of 1 for all metals
- 12 ... 30 VDC operating voltage range
- protection from short-circuits and reverse polarity
- 0 ... 20mA output current
- dimensions:  
140 x 160 x 17 mm  
(distance range 0 ... 110 mm)
- 240 x 245 x 17 mm  
(distance range 0 ... 170 mm)

We look forward to helping you find the perfect solution for your project.

Subject to changes.